ASSIGNMENT-3

Calculate the average waiting time.

1. **FCFS SCHEDULING-**

|  |  |  |
| --- | --- | --- |
| **Process Id** | **Arrival time** | **Burst time** |
| P1 | 0 | 4 |
| P2 | 2 | 6 |
| P3 | 3 | 2 |
| P4 | 6 | 1 |
| P5 | 4 | 3 |

**GNATT CHART**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| P1 | P2 | P3 | P5 | P4 |

0 4 10 12 15 16

**ARRIVAL ORDER:**

P1 , P2 , P3 , P5 , P4

**WAITING TIME:**

P1 = 0

P2 = 4 – 2 = 2

P3 = 10 – 3 = 7

P4 = 15 – 6 = 9

P5 = 12 – 4 = 8

**AVERAGE WAITING TIME:**

(0 + 2 + 7 + 9 + 8 ) / 5 = 5.2

1. **SJF non-preemptive**

|  |  |  |
| --- | --- | --- |
| **Process Id** | **Arrival time** | **Burst time** |
| P1 | 0 | 6 |
| P2 | 3 | 2 |
| P3 | 4 | 4 |
| P4 | 5 | 1 |
| P5 | 2 | 3 |

**GNATT CHART**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| P1 | P4 | P2 | P5 | P3 |

0 6 7 9 12 16

**ARRIVAL ORDER:**

P1 , P5 , P2 , P3 , P4

**WAITING TIME:**

P1 = 0

P2 = (7 -3) = 4

P3 = (12 – 4) = 8

P4 = (6 – 5) = 1

P5 = (9 – 2) = 7

**AVERAGE WAITING TIME:**

(0 + 4 + 8 + 1 + 7 ) / 5 = 4

**3) SJF preemptive -SRTF**

|  |  |  |
| --- | --- | --- |
| **Process Id** | **Arrival time** | **Burst time** |
| P1 | 4 | 6 |
| P2 | 3 | 5 |
| P3 | 2 | 4 |
| P4 | 1 | 3 |
| P5 | 0 | 2 |

**GNATT CHART**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| P5 | P4 | P3 | P2 | P1 |

0 2 5 9 14 20

**ARRIVAL ORDER:**

P5 , P4 , P3 , P2 , P1

**WAITING TIME:**

P1 = 14

P2 = 9

P3 = 5

P4 = 2

P5 = 0

**AVERAGE WAITING TIME:**

(14 + 9 + 5 + 2 + 0 ) / 5 = 6

**4) Round Robin**

**Q=3**

|  |  |  |
| --- | --- | --- |
| **Process Id** | **Arrival time** | **Burst time** |
| P1 | 0 | 9 |
| P2 | 1 | 4 |
| P3 | 2 | 3 |

**GNATT CHART**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| P1 | P2 | P3 | P1 | P2 | P1 |

0 3 6 9 12 13 16

**ARRIVAL ORDER:**

P1 , P2 , P3

**WAITING TIME:**

P1 = (13 – 6 – 0) = 7

P2 = (12 – 3 – 1) = 8

P3 = (6 – 2) = 4

**AVERAGE WAITING TIME:**

( 7 + 8 + 4 ) / 3 = 6.33

**Q = 5**

|  |  |  |
| --- | --- | --- |
| **Process Id** | **Arrival time** | **Burst time** |
| P1 | 0 | 10 |
| P2 | 5 | 20 |
| P3 | 10 | 15 |
| P4 | 15 | 5 |

**GNATT CHART**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| P1 | P2 | P1 | P3 | P2 | P4 | P3 | P2 | P3 | P2 |

0 5 10 15 20 25 30 35 40 45 50

**ARRIVAL ORDER:**

P1 , P2 , P3 , P4

**WAITING TIME:**

P1 = (10 – 5 – 0) = 5

P2 = (45 – 15 – 5) = 25

P3 = (40 – 10 - 10) = 20

P4 = 25 – 15 = 10

**AVERAGE WAITING TIME:**

( 5 + 25 + 20 + 10 ) / 4 = 15